

Name:.....Index No.:.....Adm No.....

Class-.....Candidate's Signature:Date:

231/1

BIOLOGY

TIME: 2 Hours

KAMDARA JET - 2016

Instructions to Candidates

- Write your name, index number and admission number and class in the spaces provided.
- Sign and write the date of the examination in the spaces provided above.
- Answer **ALL** the questions in the spaces provided in this question paper.
- Check to ensure that no question is missing.

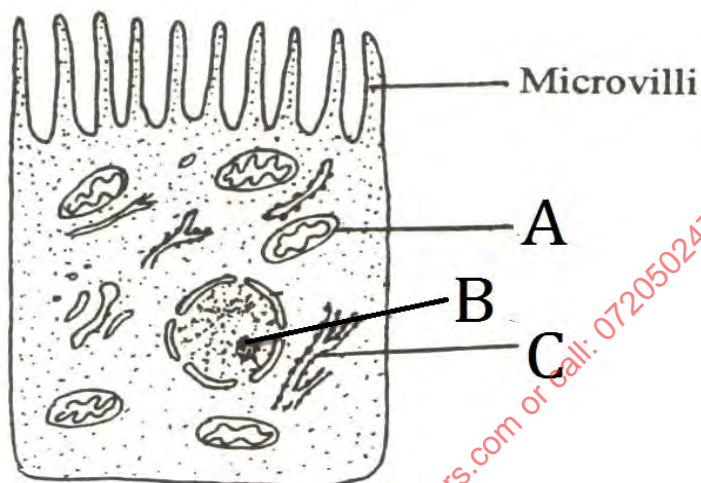
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Question Number	Maximum Score	Candidates Score
1 – 24	80	

This paper consists of 16 printed pages. Candidates should check the question paper to ascertain that all pages are printed as indicated and that no question is missing.

Answer all the questions in the spaces provided.

1. The diagram below represents microvilli on epithelial cells



- (a) Name the parts A and C (2mks)
- A
- C
- b) Name two parts in the human body where the above epithelial cells are found. (2mks)
2. (a) Name two enzymes that are produced in their precursor forms. (2mks)
- b) Name the substance that converts the enzymes named above to their active forms. (2mks)

3. Human beings are 'Homoiothermic.

(a) Explain the meaning of homoiothermic. (1mk)

(b.) What are the effects of the following in human beings? (2mks)

(i) Decrease in body temperature below the optimum level

(ii) Increase in body temperature above the optimum level.

iii) The pancreas of a mammal was surgically removed. A few hours later, glucose was found in urine of the mammal. Explain the observation. (1 mark)

4. A person walked bare feet in a swampy area. After a few weeks he started experiencing abdominal pains and diarrhoea. His urine and stool contained blood.

(a) Name the disease the person was likely to be suffering from and the causative agent of the disease

(i) Disease (1mk)

(ii) Causative agent (1mk)

(b.) Apart from avoiding walking bare feet in swampy area. State **two** other ways of controlling the disease. (2mks)

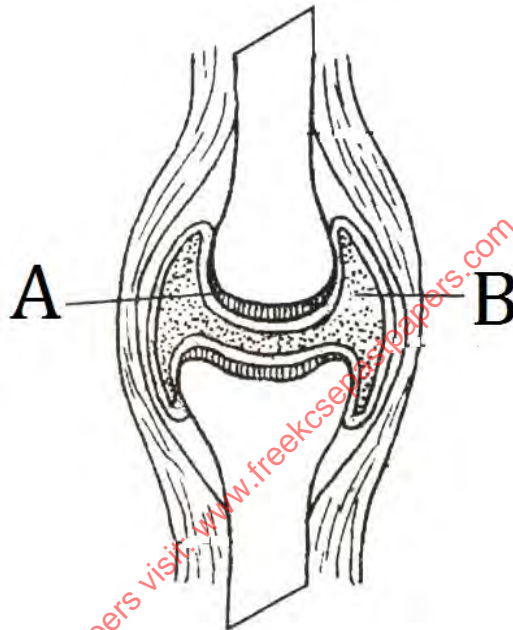
5. State the functions of the following parts of a brain. (3mks)

(a) Thalamus

(b) Midbrain

(c) Medulla oblongata

6. The diagram below shows a joint in a mammal. Study it and answer the questions.



(a) State the functions of parts A and B (2mks)

A

B

(b) Name the type of joint illustrated by the diagram (1mk)

(c) State **two** adaptations of joint named in (b) Above (2mks)

7. (a) What is mutation? (1mk)

(b) Name **one** disorder caused by gene mutation and one disorder caused by chromosome mutation. (2mks)

Gene mutation-----

Chromosome mutation-----

8. a) What is the disadvantage of self- pollination in plants? (1mk)

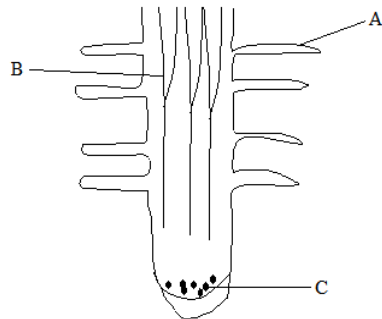
(b.) State **two** features that discourage self-pollination. (2mks)

9. State the importance of companion cell in phloem tissue. (1mk)

10. State **TWO** effects of gibberellins on shoots of plants. (2 Marks)

11. Distinguish between resolving power and magnifying power of a microscope (2 Marks)

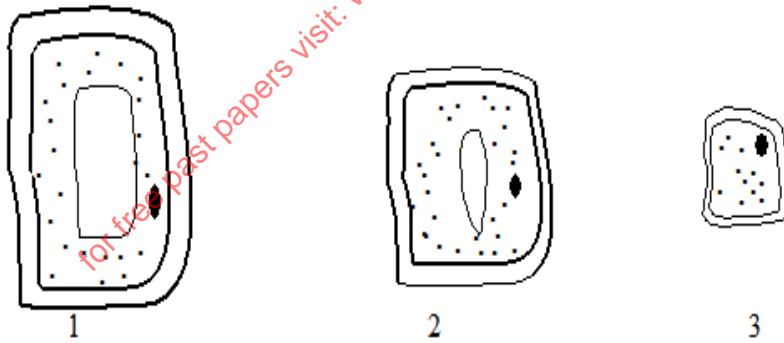
12. The following diagram is a longitudinal section of a root apex.



a. Identify the parts labeled A, B and C .

(3 Marks)

b. The figure below represents THREE cells 1, 2, and 3.



Identify the THREE regions of the root tip from which the cells were got from,

(3 Marks)

1

2

3

13. a) What is heterozygous advantage?

(1 Mark)

b) Give an example.

(1 Mark)

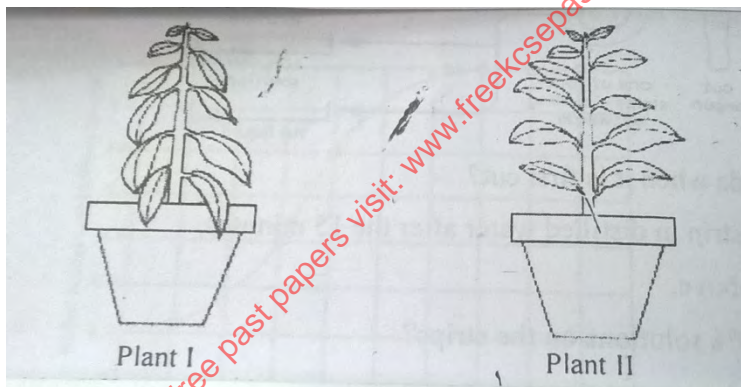
14. After a colony of penicillin-sensitive bacteria was exposed to antibiotic penicillin, a penicillin resistant emerged. Explain this observation

(2 Marks)

15. What is meant by speciation?

(2 Marks)

16. The diagram below shows two potted plants on a laboratory bench near a window.



a) State one observable difference between the plants I and II.

(1mark)

b) State the importance of the process that is seen in plant I.

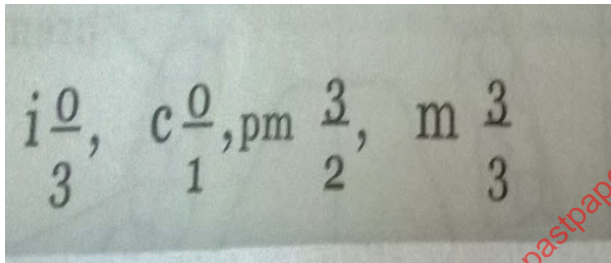
(1mark)

c) Explain the process that resulted to appearance of the leaves as in plant I above.

(1mark)

- d) Suppose a cell from a leaf of each of the plants I and II is mounted and observed under a microscope. Draw a diagram of a cell from each of the plants leaves. (2marks)

17. Study the dental formula below.

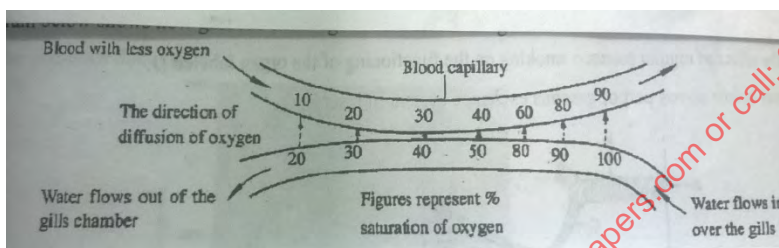

$$\begin{matrix} i & 0 \\ & 3 \end{matrix}, \begin{matrix} c & 0 \\ & 1 \end{matrix}, pm \begin{matrix} 3 \\ 2 \end{matrix}, m \begin{matrix} 3 \\ 3 \end{matrix}$$

- a) Identify the mode of feeding carried out by the animal with this dental formula. (1mark)
- b) Give reasons for your answer in (a) above. (1mark)
- c) State the role of carnassial teeth in a lion. (1 mark)
18. State **two** reasons why the stomach lining is not usually digested by pepsin though it is made of protein. (2marks)

19. State **three** differences between Rods and Cones.

(3marks)

20. The diagram below shows how gaseous exchange occurs across the gills of a fish.



According to the diagram water and blood flows in opposite direction across the gills.

a) Give the term used to describe this flow.

(1mark)

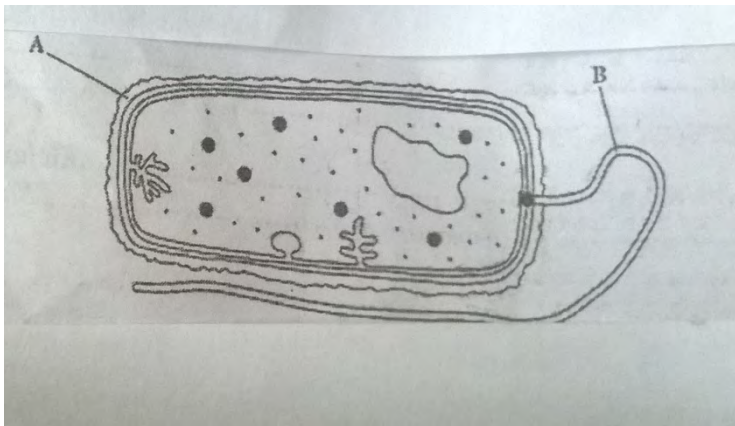
b) Explain the advantage of the above flow named in (a) above.

(2marks)

c) What differences would be observed if water and blood flow across the gills in the same direction.

(2marks)

21. The drawing shows a bacterial cell.



a) Name structures A and B.
(2marks)

b) State the kingdom to which the cell above belongs.

(1marks)

c) Give two observable reasons for your answer.

(2marks)

22 a) What is the Rhesus factor?

(1 mark)

b) A rhesus negative person received rhesus positive blood during transfusion.
Explain why it is dangerous to give similar transfusion a second time.
(2 marks)

23. State three adaptive features of a desert plant.

(3 marks)

24. The table below shows the oxygen consumption and carbon dioxide released at rest by a number of animals under certain conditions.

Animal	Body mass(g)	Oxygen consumption in cm ³ per hour	Carbon dioxide released in cm ³ per hour	Respiratory Quotient
Mouse	20	40	40	
Dog	10000	1960	2800	
Sheep	40000	4970	7100	
Horse	600000	700000	700000	

a) Complete the table in the last column showing respiratory quotient.

(2marks)

b) From the completed table suggest which animal was oxidizing.

(2marks)

i) Fats

ii) Carbohydrates

The End